



# Missouri Geological Survey

Missouri Geological Survey fact sheet  
Missouri Geological Survey Director: Joe Gillman

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## Missouri Geological Survey

Since 1853, the Missouri Geological Survey has provided reliable scientific information to describe and promote understanding of Missouri's wealth of natural resources.

### Groundwater Source Identification and Protection

Missouri has significant groundwater resources available for use. MGS identifies and evaluates the availability and use of groundwater and utilizes geologic science to ensure protection of critical groundwater resources from potential contaminants to safeguard availability for current and future use.

### Geologic Hazards and Missouri Resiliency

Missouri experiences geological hazards including, but not limited to, earthquakes, such as catastrophic sinkhole and mine collapse, landslides, swelling soils and flooding. MGS investigates geologic hazards and provides science-based information for emergency planning, mitigation, and response coordination that will help protect public safety, security and economic health.

### Geologic Mapping: The Foundation of Missouri's Infrastructure

MGS conducts geologic mapping to provide a foundation for a broad list of activities focusing on human health, the environment, natural hazards, anthropogenic hazards, emergency planning and response, energy and mineral resources, groundwater resources, land use planning, agriculture, economic development, education, public policy support and tourism and recreation.

### Earth Science in Everyday Life

In an effort to provide the public and policy makers fundamental information for decision making, MGS employs an interdisciplinary approach to evaluating earth systems and the implications of changes to these systems. This approach helps the department better understand how natural systems are influenced by increased demand on water, land, mineral and energy resources and provides the foundation for strategies to protect those resources.

### Energy and Minerals for Missouri

Economic and environmental health and the current standard of living depend heavily on adequate and reliable supplies of energy and mineral resources. Missouri produces more than \$2 billion annually in resource commodities and global demand continues to grow. Therefore, MGS strives to characterize the availability, quantity and quality of the state's metallic minerals, industrial minerals, oil and gas occurrences and coal deposits.

## Earth Science for Missouri

### Groundwater Source Identification and Protection

- Missouri has more than 150,000 private water wells; each year 4,000 private water wells are drilled and 2,300 are plugged.\*
- Missouri has more 4,300 public wells, some supplying as much as 2 million gallons of water each day.\*
- Groundwater is a valuable resource that must be understood to ensure availability now and for future generations. Several billion gallons of water are pumped from the ground every year to serve more than 2 million Missouri citizens.\*

## **Geologic Hazards and Resiliency for Missouri**

- The Missouri Geological Survey has verified more than 16,000 sinkholes in Missouri.\*
- A magnitude 7.0 earthquake striking the New Madrid Seismic Zone would result in an estimated \$40 billion in damage in Missouri.†
- Thirty-five percent of Missouri business and homeowners expend an estimated \$80 million in earthquake hazard insurance premiums each year.‡

## **Geologic Mapping: The Foundation of Missouri's Infrastructure**

- Geologic mapping efforts since 1993 have established the potential for producing nearly \$200 million in economic value for Missouri.§
- Studies show that a geologic map is valued at 25 to 39 times the cost to produce it, and geologic maps can save developers and engineers about \$50,000 per project.§
- Geologic maps provide value for road, bridge and building design; land use planning; development of utility and transportation corridors; risk assessment and planning for earthquakes and other hazards; and assessments for minerals, water resources and environmental issues.

## **Earth Science in Everyday Life**

- MGS geologists assess the groundwater contamination potential at more than 500 sites each year. These include proposed wastewater treatment systems, municipal and industrial solid waste disposal units and hazardous waste sites.
- MGS geologists respond to more than 15,000 geologic inquiries each year.
- MGS contributes to state and federal Science, Technology, Engineering and Mathematics (STEM) workforce development initiatives and general scientific literacy by educating approximately 1,500 Missouri students each year in geologic disciplines.

## **Energy and Minerals for Missouri**

- Industry produced 200,567 barrels of oil worth more than \$17 million from Missouri deposits in 2013.\*
- Missouri industries produced 7 million tons of cement worth \$538 million in 2010.\*\*
- Missouri industries produced 77 million tons of limestone worth \$591 million in 2010.\*\*
- Missouri industries produced 180,000 tons of lead worth \$393 million in 2010.\*\*

Nothing in this document may be used to implement any enforcement action or levy any penalty unless promulgated or authorized by statute.

## **For more information:**

Missouri Department of Natural Resources  
Missouri Geological Survey  
111 Fairgrounds Road  
P.O. Box 250  
Rolla, MO 65402-0250  
Phone: 573-368-2100  
Fax: 573-368-2111  
[dnr.mo.gov/geology/](http://dnr.mo.gov/geology/)

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\* Missouri Geological Survey Databases: Environmental Geology, Wellhead Protection, Oil and Gas, Industrial Minerals.

† Mid-America Earthquake Center, 2009, Impact of New Madrid Seismic Zone earthquakes on the central USA, v. 1, 153 p.

‡ Missouri Department of Insurance, Financial Institutions and Professional Registration, 2008, Final report of the Missouri Earthquake Insurance Task Force, 30 p.

§ Bernknopf, Richard L. et al., 1996, Societal value of geologic maps: United States Geological Survey Circular 1111, 53 p.

\*\* United States Department of the Interior and United States Geological Survey, 2012, Mineral commodity summaries 2012, 201 p.